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मानक

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Mazdoor Kisan Shakti Sangathan

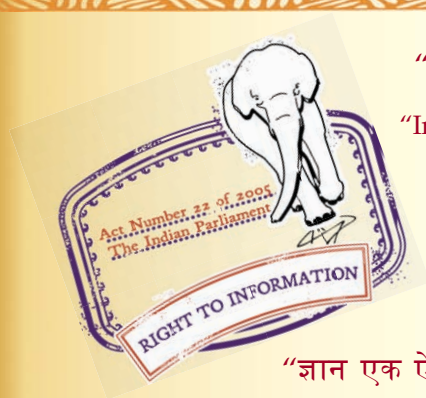
“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 13057 (1991): Potassium iodate [CHD 1: Inorganic Chemicals]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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भारतीय मानक
पोटाशियम आयोडेट
Indian Standard
POTASSIUM IODATE

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BHADUR SHAH ZAFAR MARG
NEW DELHI 110002

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Acids, Alkalies and Halides Sectional Committee had been approved by the Chemical Division Council.

Potassium iodate is widely used for iodization of edible common salt. It is used as feed additive and as maturing agent and dough conditioner. It is also used in iodometry and medicines.

In this standard three grades of potassium iodate, namely, analytical, food and technical grades, have been covered.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

POTASSIUM IODATE

1 SCOPE

This standard prescribes requirements and methods of sampling and test for potassium iodate.

2 REFERENCES

The Indian Standards listed below are necessary adjuncts to this standard:

IS No.	Title
1070 : 1977	Water for general laboratory use (<i>second revision</i>)
2088 : 1983	Methods for determination of arsenic (<i>second revision</i>)
4905 : 1968	Methods for random sampling
5741 : 1970	Method for determination of pH

3 GRADES

There shall be three grades of the material, namely:

- a) Analytical Reagent (AR),
- b) Food (FD), and
- c) Technical (Tech).

4 REQUIREMENTS

4.1 Description

The material shall be in the form of white crystalline powder, free from impurities.

4.2 The material shall comply with the requirements given in Table 1 when tested in accordance with the relevant test methods prescribed in Annex A.

5 PACKING AND MARKING

5.1 Packing

5.1.1 The material shall be packed in airtight bottles of capacity 500 g, 1 kg and 2.5 kg.

5.1.2 For bulk packaging, the material shall be packed in steel or fibre drums having polyethylene liner bags, with capacity of 10 kg, 25 kg and 50 kg.

5.2 Marking

5.2.1 The containers shall be securely closed and marked legibly and indelibly with the following information:

- a) Name of the material;
- b) Mass of the material in the package;
- c) Indication of the source of manufacture; and
- d) Lot or batch number, in code or otherwise.

5.2.2 The containers may also be marked with the Standard Mark.

6 SAMPLING

The method of drawing representative test samples of the material and the criteria for conformity shall be as prescribed in Annex B.

Table 1 Requirements for Potassium Iodate
(*Clauses 4.2, B-5.1 and B-5.2*)

Sl No.	Characteristic	Requirement			Method of Test (Ref to Cl No. in Annex A)
		AR Grade	FD Grade	Tech Grade	
(1)	(2)	(3)	(4)	(5)	(6)
i)	Potassium iodate (as KIO_3), percent by mass, <i>Min</i>	99.9	99.0	99.0	A-3
ii)	Matter insoluble in water, percent by mass, <i>Max</i>	0.003	—	—	A-4
iii)	Free acid, percent by mass, <i>Max</i>	0.002	—	—	A-5
iv)	Free alkali, percent by mass, <i>Max</i>	0.002	—	—	A-5
v)	Bromate, bromide, chlorate and chloride (as Cl), percent by mass, <i>Max</i>	0.02	0.01	0.1	A-6
vi)	Iodide (as I), percent by mass, <i>Max</i>	0.001	0.002	0.005	A-7
vii)	Nitrogen compound (as N), percent by mass, <i>Max</i>	0.002	—	—	A-8
viii)	Sulphate (as SO_4), percent by mass, <i>Max</i>	0.01	—	0.1	A-9
ix)	Iron (as Fe), percent by mass, <i>Max</i>	0.001	—	—	A-10
x)	Heavy metals (as Pb), ppm, <i>Max</i>	10	10	—	A-11
xi)	Sodium (as Na), percent by mass, <i>Max</i>	0.01	—	0.05	A-12
xii)	Loss on drying, percent by mass, <i>Max</i>	0.05	0.5	—	A-13
xiii)	Arsenic (as As), ppm, <i>Max</i>	—	3	—	A-14
xiv)	pH (5 percent solution)	5.5-9.0	5.5-9.0	5.5-9.0	A-15

ANNEX A

(Clause 4.2)

METHODS OF TEST FOR POTASSIUM IODATE

A-1 QUALITY OF REAGENTS

Unless specified otherwise, pure chemicals and distilled water (see IS 1070 : 1977) shall be used in tests.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the results of analysis.

A-2 PREPARATION OF SAMPLE

A-2.1 Sample for determination of potassium iodate content shall be the residual material obtained at the end of the test for loss on drying.

A-2.2 Sample for Other Tests

Crush 100 g of the sample so that it passes through 1·00 mm IS Sieve, and keep it in a clean glass-stoppered weighing bottle in a desiccator for subsequent tests.

A-3 DETERMINATION OF POTASSIUM IODATE

A-3.1 Reagents

A-3.1.1 Potassium Iodide

A-3.1.2 Hydrochloric Acid — approximately 5 N.

A-3.1.3 Standard Sodium Thiosulphate Solution — 0·1 N.

A-3.1.4 Starch Indicator Solution

Mix 0·5 g of soluble starch with 5 ml of cold water. Add this mixture, with stirring, to 95 ml of boiling water and heat in a boiling water bath for 5 minutes.

A-3.2 Procedure

Dissolve 1·5 g of the dried material (at 130°C) in water and dilute to 500 ml. To 50 ml of this solution add 3 g of potassium iodide and 10 ml of dilute hydrochloric acid and titrate the liberated iodine with 0·1 N standard sodium thiosulphate solution, using starch as indicator. Perform a blank determination and make necessary correction, if any.

A-3.3 Calculation

Potassium iodate (as KIO_3), percent by mass =
$$\frac{3 \cdot 567 (V_1 - V_2)}{M}$$

where

V_1 = volume in ml of standard sodium thiosulphate solution used in titrating the sample,

V_2 = volume in ml of standard sodium thiosulphate solution used in titrating the blank, and

M = mass in g of the sample taken for the test.

A-4 DETERMINATION OF MATTER INSOLUBLE IN WATER

A-4.1 Procedure

Dissolve 20 g of the sample (see A-2.2) in about 400 ml of warm water. Cool the solution and set it aside for 1 hour. Filter through a weighed sintered glass crucible (G No. 4). Wash the residue with water and dry to constant mass at 105°C.

A-4.2 Calculation

Matter insoluble in water, percent by mass

$$= \frac{M_1 \times 100}{M_2}$$

where

M_1 = mass in g of the residue, and

M_2 = mass in g of the sample taken for the test.

A-5 TEST FOR FREE ACID AND FREE ALKALI

A-5.1 Apparatus

pH Meter

A-5.2 Reagents

A-5.2.1 Sodium Hydroxide Solution — 0·02 N.

A-5.2.2 Hydrochloric Acid Solution — 0·02 N.

A-5.3 Procedure

Dissolve 10 g of the sample in 200 ml of carbon dioxide free water and titrate with sodium hydroxide or hydrochloric acid to pH 7·0. Not more than 0·25 ml of sodium hydroxide or hydrochloric acid shall be required.

A-6 TEST FOR BROMATE, BROMIDE, CHLORATE AND CHLORIDE

A-6.1 Reagents

A-6.1.1 Sulphur Dioxide

A-6.1.2 Dilute Ammonia Solution — Approximately 5 N. Add 280 ml of strong ammonia solution (AR or GR grade, rd 0·88) to sufficient water to make up the volume to 1 000 ml.

A-6.1.3 Silver Nitrate Solution — 0.1 N. Dissolve 16.087 g of silver nitrate (AR or GR grade) in sufficient water to make up the volume to 1 000 ml.

A-6.1.4 Dilute Nitric Acid — approximately 5 N. Add 320 ml of nitric acid (AR or GR grade, rd 1.42) to sufficient water and make up the volume to 1 000 ml.

A-6.1.5 Standard Chloride Solution

Dissolve 0.164 g of sodium chloride (NaCl) in water and dilute to 1 000 ml. One millilitre of this solution contains 0.1 mg of chloride (as Cl).

A-6.2 Procedure

A-6.2.1 Dissolve 0.5 g of the sample in 50 ml of water and pass sulphur dioxide into the solution until the precipitate of iodine redissolves. Evaporate the solution to about 2 ml, cool, add 6 ml of dilute ammonia solution, transfer to a stoppered test tube and dilute to 15 ml with water. Add 15 ml of silver nitrate solution, shake well and filter. To 15 ml of filtrate, add 30 ml of water and 5 ml of dilute nitric acid. Any opalescence produced shall not be greater than the standard opalescence produced as in A-6.2.2.

A-6.2.2 Standard Opalescence

To 50 ml of water add the following quantity of standard chloride solution, 1 ml of dilute nitric acid and 1 ml of silver nitrate solution, mixing after each addition:

<i>Grade of Material</i>	<i>Quantity of Standard Chloride Solution</i>
	ml
AR	1
FD	0.5
Tech	5

Use as comparison standard after 5 minutes.

A-7 TEST FOR IODIDE

A-7.1 Reagents

A-7.1.1 Dilute Sulphuric Acid

A-7.1.2 Starch Indicator Solution

Triturate 1 g of arrowroot starch with 10 ml of cold water and pour slowly, with constant stirring, into 200 ml of boiling water. Boil the mixture until a thin translucent fluid is obtained. Allow to settle and use only the clear, supernatant liquid. Prepare this solution fresh.

A-7.2 Procedure

For AR grade, dissolve 2 g of the material in 10 ml of water and add 1 ml of dilute sulphuric acid and 1 drop of starch solution. No blue colour shall be formed. Use 1 g of the material for testing food grade and 0.4 g of the material for testing technical grade of potassium iodate.

A-8 TEST FOR NITROGEN COMPOUNDS

A-8.1 Apparatus

Micro Kjeldahl's Distillation Apparatus

A-8.2 Reagents

A-8.2.1 Sodium Hydroxide Solution (Nitrogen Free)

To 50 ml of sodium hydroxide solution (approximately 5 N) add 100 ml of water and 0.1 g of aluminium wire and boil down to 50 ml. Cool and decant from any residue.

A-8.2.2 Sodium Hydroxide Solution (Ammonia Free)

To 50 ml of sodium hydroxide solution (approximately 5 N) add 100 ml of water and boil to reduce the volume to 50 ml.

A-8.2.3 Aluminium Wire

A-8.2.4 Hydrochloric Acid — 0.1 N

A-8.2.5 Standard Ammonium Solution

Dissolve 2.97 g of ammonium chloride (AR or GR grade) in sufficient water and make it to 100 ml. (This solution shall be freshly prepared.) Dilute 1 ml of this solution to 100 ml with water immediately before use. One millilitre of the standard ammonium solution thus prepared contains 0.01 mg of NH_4 .

A-8.2.6 Nessler's Reagent

Dissolve 35 g of potassium iodide (AR or GR grade) and 12.5 g of mercuric chloride (AR or GR grade) in 800 ml of water and add cold saturated solution of mercuric chloride until a slight permanent precipitate is produced. Then add 120 g of sodium hydroxide (AR or GR grade).

Dissolve and add a little more of mercuric chloride solution and sufficient water to make the volume to 1 000 ml. Shake occasionally for several days and allow to settle and decant the clear liquid.

A-8.3 Procedure

To 1 g of the sample in micro-Kjeldahl's distillation apparatus add 25 ml of sodium hydroxide solution (nitrogen free) and 1 g of aluminium wire. Pass steam into the distillation flask and collect any distillate in 5 ml of water containing 1 ml of hydrochloric acid. Continue to pass steam till the liquid boils. Disconnect the steam, allow the reaction to proceed for 1 hour and then steam distil until a total volume of 50 ml is obtained during about 6 minutes. Prepare a standard in the same manner using 2.58 ml of standard ammonium solution in place of the sample.

To 25 ml of each distillate add 25 ml of water, 2 ml of sodium hydroxide solution (ammonia free) and 2 ml of Nessler's reagent. Any yellow colour produced in the test shall not be deeper than that produced in the standard.

A-9 TEST FOR SULPHATE**A-9.1 Method A (Turbidimetric Method)****A-9.1.1 Reagents**

A-9.1.1.1 Industrial Methylated spirit (absolute, 74 OP)

A-9.1.1.2 Industrial methylated spirit (20 percent)

Dilute 20 ml of absolute industrial methylated spirit with water to produce a final volume of 100 ml.

A-9.1.1.3 Barium chloride solution — approximately 1 N. Dissolve 122 g barium chloride dihydrate in water and make up the volume to 1 000 ml.

A-9.1.1.4 Dilute hydrochloric acid — approximately 5 N. Dilute 430 ml of hydrochloric acid (AR or GR grade rd 1'18) with sufficient water to make up the volume to 1 000 ml.

A-9.1.1.5 Standard sulphate solution

Dilute 20.8 ml of 0.1 N sulphuric acid with sufficient water to make up the volume to 1 000 ml. This solution contains 0.1 mg of SO_4 per ml.

A-9.1.2 Procedure

A-9.1.2.1 Dissolve 1 g of the sample in 40 ml of water, add 0.6 g of hydroxy ammonium chloride and boil till the liberated iodine is expelled. Cool, dilute to 40 ml with water, add 10 ml of absolute industrial methylated spirit and 1 ml of dilute hydrochloric acid. Mix the resulting solution after adding 1 ml of barium chloride solution, and allow to stand for 1 hour. Any turbidity produced shall not be greater than the standard turbidity produced as in A-9.1.2.2.

A-9.1.2.2 Standard turbidity

Take 1 ml of standard sulphate solution for AR grade and 10 ml for Tech grade of the material. Add 37 ml of water, 10 ml of absolute industrial methylated spirit, 1 ml of dilute hydrochloric acid and mix. Add 1 ml of barium chloride solution mix immediately and allow to stand for 1 hour.

A-9.2 Method B (Gravimetric Method)**A-9.2.1 Reagents**

A-9.2.1.1 Dilute hydrochloric acid — approximately 4 N.

A-9.2.1.2 Barium chloride — approximately 10 percent.

A-9.2.2 Procedure

Dissolve 1 g of the sample in 40 ml of water, add 0.6 g of hydroxy ammonium chloride and boil till the liberated iodine is expelled. Cool and dilute to 400 ml with water. Add one drop of methyl orange and about 10 ml of dilute hydrochloric acid till it becomes pink and then boil. To the boiling solution add barium chloride solution drop by drop so that the addition is in slight excess and continue boiling for 4 minutes to obtain a granular precipitate. Allow it to stand for 4 hours and filter through a weighed sintered glass crucible (G No. 4). Wash the precipitate till it is free from chloride and dry to constant mass at 105 to 110°C. Alternatively, filter through Whatman filter paper No. 42 and wash till it is free from chloride. Ignite and weigh as barium sulphate.

A-9.2.3 Calculation

$$\text{Sulphate (as } \text{SO}_4 \text{), percent by mass} = \frac{41.13 M_1}{M_2}$$

where

M_1 = mass in g of the barium sulphate precipitate, and

M_2 = mass in g of the sample taken for the test.

A-10 TEST FOR IRON**A-10.1 Apparatus**

Nessler Cylinder — 50 ml capacity.

A-10.2 Reagents

A-10.2.1 Dilute Sulphuric Acid — approximately 5 N. Pour 136 ml of sulphuric acid (AR grade, 36 N) in sufficient quantity of water, mix and allow to cool. Make the volume to 1 000 ml.

A-10.2.2 Dilute Hydrochloric Acid — approximately 5 N. Dilute 430 ml of hydrochloric acid (AR grade, rd 1'18) with sufficient water to make up the volume to 1 000 ml.

A-10.2.3 Potassium Permanganate Solution — 0.1 N.

A-10.2.4 Ammonium Thiocyanate Solution — approximately 7.5 N. Dissolve 570 g of ammonium thiocyanate (AR grade) in sufficient water and make the volume to 1 000 ml.

A-10.2.5 Amyl Acetate — AR or GR grade.

A-10.2.6 Amyl Alcohol — AR or GR grade.

A-10.2.7 Standard Iron Solution

Dissolve 0.070 2 g of ferrous ammonium sulphate [$\text{FeSO}_4 \cdot (\text{NH}_4)_2\text{SO}_4 \cdot 6\text{H}_2\text{O}$] in water, and add 10 ml of dilute sulphuric acid (10 percent v/v). Dilute to exactly 100 ml in a volumetric flask. Take 25 ml of this solution into a 250 ml volumetric flask and dilute to the mark with water. One millilitre of this solution contains 0.01 mg of iron (as Fe).

A-10.3 Procedure

Dissolve 3 g of the sample in a mixture of 30 ml of water and 5 ml of dilute sulphuric acid and pass sulphur dioxide through the solution until the precipitate of iodine redissolves. Evaporate the solution to dryness on a hot plate, mix the residue with 10 ml of dilute hydrochloric acid and evaporate to dryness on a steam bath. Dissolve the residue by warming with a mixture of 3 ml of dilute hydrochloric acid and 27 ml of water. Retain 20 ml for the heavy metals test and to 10 ml apply the iron test as given in A-10.3.1.

A-10.3.1 Take 10 ml of solution in a 50-ml Nessler cylinder obtained in A-10.3 add 1 drop of potassium permanganate solution and mix. Add 5 ml of ammonium thiocyanate solution and 10 ml of a mixture of equal volumes of amyl alcohol and amyl acetate. Shake vigorously and allow to separate. Any red colour produced in the upper layer shall not be deeper than that produced in the upper layer of the standard as in A-10.3.2.

A-10.3.2 To 1 ml of standard iron solution in a 50-ml Nessler cylinder, add 1 ml of dilute hydrochloric acid and dilute with water to the same volume as the acidified solution of the test sample. Add 1 drop of potassium permanganate solution and mix. Add 5 ml of ammonium thiocyanate solution and 10 ml of a mixture of equal volumes of amyl alcohol and amyl acetate. Shake vigorously and allow to separate.

A-11 TEST FOR HEAVY METALS**A-11.1 Apparatus**

Nessler Cylinder — 50 ml capacity.

A-11.2 Reagents

A-11.2.1 Dilute Acetic Acid — approximately 5 N. Add 285 ml of acetic acid (glacial, AR or GR grade, rd 0.88) to sufficient quantity of water and make up the volume to 1 000 ml.

A-11.2.2 Standard Lead Solution

Dissolve 1.60 g of lead nitrate (AR or GR grade) in 50 ml of nitric acid (AR or GR grade rd 1.42), add sufficient water and make the final volume to 1 000 ml. Dilute 10 ml of this solution to 1 000 ml. One millilitre of the standard solution thus prepared contains 0.01 mg of lead (as Pb).

A-11.2.3 Standard Iron Solution — As in A-10.2.7.

A-11.3 Procedure

A-11.3.1 Take the remaining 20 ml of the solution from the iron test (A-10.3) in a 50-ml Nessler cylinder add 20 ml of water and 10 ml of dilute ammonia solution. Pass hydrogen sulphide through the solution for a few seconds. No turbidity shall be produced. The colour produced shall not be deeper than that of the solution prepared as in A-11.3.2.

A-11.3.2 Mix 2 ml of standard lead solution with 3 ml of dilute acetic acid. Add 2 ml of standard iron solution, dilute to 40 ml with water and add 10 ml of dilute ammonia solution. Pass hydrogen sulphide through the solution for a few seconds.

A-12 DETERMINATION OF SODIUM**A-12.1 Apparatus**

Simple Flame Photometer — equipped with interference filter.

A-12.2 Reagent*Standard Sodium Chloride Solution*

Weigh accurately 5 g of sodium chloride and dissolve it in water. Transfer to a 1 000-ml flask and make up the volume to the mark. Dilute 10 ml of this solution to 100 ml with water immediately before use. One millilitre of the standard solution thus prepared contains 0.5 mg of sodium chloride.

A-12.3 Procedure

Dissolve 1 g of the sample in water and make up the volume to 100 ml. Divide this solution into two equal volumes. To 50 ml add 0.5 ml of standard sodium chloride solution. Spray the solution into the flame of the photometer and adjust the sensitivity to give a meter reading S , approaching full scale deflection, with the appropriate filter in position. Spray water into the flame and adjust the zero control to give no deflection and recheck the reading S . Maintaining the sensitivity, spray, the remaining 50 ml and note the meter reading X which should preferably be about one quarter of the full scale deflection.

A-12.4 Calculation

$$\text{Sodium (as Na), percent by mass} = \frac{X \times C}{M(S-X)}$$

where

C = concentration of NaCl in the standard solution, percent; and

M = mass in g of the sample used to prepare 100 ml of solution.

A-13 DETERMINATION OF LOSS OF MASS ON DRYING AT 130°C**A-13.1 Apparatus**

A-13.1.1 Weighing Bottle — of approximately 100 ml capacity, 75 mm in diameter, with ground glass stopper.

A-13.1.2 Electric Oven — capable of maintaining a temperature of $130 \pm 2^\circ\text{C}$.

A-13.2 Procedure

Weigh 5 g of the material to the nearest 0.1 mg. Spread thin layers of the material in the weighing bottle which shall be previously dried for 30 minutes in the oven controlled at a temperature of 130°C, cooled in a desiccator and weighed. Place the weighing bottle in the oven with its ground glass stopper placed slantwise. Gradually heat the oven from the starting temperature (which should not exceed 100°C) to 130±2°C and maintain this temperature for 1 hour. Remove the weighing bottle, place it in a desiccator and cool. After cooling to room temperature, weigh it again with the stopper in position.

A-13.3 Calculation

Loss of mass on drying
at 130°C, percent
by mass
$$= \frac{(M_1 - M_2) \times 100}{M}$$

where

M_1 = mass in g of the material and weighing bottle before heating,

M_2 = mass in g of the material and weighing bottle after heating, and

M = mass in g of the material taken for the test.

A-14 TEST FOR ARSENIC

Dissolve 1 g of the material in a mixture of 2 ml of hydrochloric acid and 1 ml of sulphuric acid and evaporate to fumes of sulphur trioxide. Add 1 ml of hydrochloric acid, again evaporate to fumes and dissolve the residue in 10 ml of water. Heat on a steam bath, discharge any yellow colour with hydrosulphate, cool and dilute with water to 35 ml. This solution shall meet the requirement of arsenic test as prescribed in IS 2088 : 1983.

A-15 DETERMINATION OF pH OF AQUEOUS SOLUTION

Dissolve 5.0 g of the material in 100 ml of freshly boiled and cooled water (the water shall be protected with soda lime tube while cooling). Determine the pH of the solution using a suitable pH meter (see IS 5741 : 1970).

ANNEX B
(Clause 6)

SAMPLING OF POTASSIUM IODATE

B-1 GENERAL REQUIREMENTS OF SAMPLING

B-1.0 In drawing samples, the following precautions and directions shall be observed.

B-1.1 Precautions shall be taken to protect the samples, the material being sampled, the sampling instrument and the containers for samples from adventitious contamination.

B-1.2 The samples shall be placed in suitable, clean and dry containers.

B-1.3 The sample containers shall be of such size that they are almost completely filled by the sample.

B-1.4 Each sample container shall be sealed airtight after filling and marked with full details of sampling and the date of sampling.

B-2 SCALE OF SAMPLING

B-2.1 Lot

All the containers in a single consignment of the material drawn from a single batch of manufacture shall constitute a lot. If a consignment is declared or known to consist of different batches of manufacture, the containers belonging to the same batch shall be grouped together and each such group shall constitute a separate lot.

B-2.2 Samples shall be tested from each lot separately for ascertaining conformity of the material to the requirements of the specification. The number of containers to be selected from a lot (n) shall depend on the size of the lot (N) and shall be in accordance with Table 2.

Table 2 Number of Containers to be Selected for Sampling

Lot Size N	Number of Containers to be Selected n
4 to 50	3
51 to 100	4
101 to 150	5
151 to 300	7
301 and above	10

NOTE — When the size of the lot is 3 or less, the number of containers to be selected and the criterion for judging the conformity of the lot to the specification shall be as agreed to between the purchaser and the supplier.

B-2.3 These containers shall be selected at random from the lot. For random selection procedure, guidelines can be had from IS 4905 : 1968. In case IS 4905 : 1968 is not available, the following procedure shall be adopted:

Arrange all the containers in the lot in a systematic manner and starting from any one, count them 1, 2, 3, ..., etc, up to r and so on, where r is the integral part of N/n . Every r th container thus counted shall be taken out.

B-3 PREPARATION OF TEST SAMPLES AND REFEREE SAMPLE

B-3.1 For drawing samples, an auger shall be used. Introduce the auger in different parts of each container to draw an appropriate quantity of the sample from each container.

B-3.2 Out of the portions collected from all the selected containers, an equal quantity of the material shall be taken out and mixed together to form a composite sample of about 250 g. The composite sample so formed shall be divided into three equal parts, one for the purchaser, another for the supplier and the third to be used as a referee sample.

B-3.3 The remaining portion of the sample from each container shall be divided into three equal parts and each such separate part shall constitute an individual sample. One set of individual samples (representing the n containers selected) shall be marked for the purchaser, another for the supplier and the third for the referee.

B-3.4 All the individual and the composite samples shall be immediately transferred to separate glass bottles which shall be labelled with full identification particulars of the samples.

B-3.5 The referee samples shall bear the seal of both the purchaser and the supplier. These shall be kept at a place agreed to between the purchaser and the supplier, to be used in case of dispute between the two.

B-4 NUMBER OF TESTS

Tests for potassium iodate content, matter insoluble in water and loss on drying shall be conducted on each of the individual samples and tests for all other requirements given in 4.1 and Table 1 shall be conducted on the composite sample.

B-5 CRITERIA FOR CONFORMITY

A lot shall be considered as conforming to the requirements of this specification if the stipulations laid down in B-5.1 and B-5.2 are fulfilled.

B-5.1 For Potassium Iodate

From the individual test results for potassium iodate content the mean ($\bar{x}$) and the range (R) or mean range ($\bar{R}$) shall be calculated. (Range is the difference between the maximum and the minimum of the test results). When the sample size is 10, the test results shall be arranged in two groups of 5 each in the order of their occurrence and the range for each group computed. $\bar{R}$ will be the mean of these two R 's. The lot shall be deemed satisfactory for this characteristic if ($\bar{x} - 0.6 R$) or ($\bar{x} - 0.6 \bar{R}$) is greater than or equal to the minimum requirement specified in Table 1.

B-5.2 For Other Characteristics

The test results for all other characteristics prescribed in 4.1 and Table 1 shall satisfy the relevant requirements.

Standard Mark

The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act, 1986* and the Rules and Regulations made thereunder. The Standard Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well defined system of inspection, testing and quality control which is devised and supervised by BIS and operated by the producer. Standard marked products are also continuously checked by BIS for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

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